**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of
  Waterland
Serial No: 10/849,610
Filed: 05/20/2004
 	
Title: SECURE PASSWORD
ENTRY
 	
Docket Number:
AUS920040101US1
	Before Examiner:
	  TABOR
	Group Art Unit: 2109
	
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APPEAL BRIEF UNDER 37 CFR §41.37

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This Appeal Brief is submitted in support of the Appeal in the above-referenced application pursuant to a Notice of Appeal filed October 10, 2008 as required by 37 C.F.R. 41.31. This is an appeal from a final rejection dated July 10, 2008 of Claims 1-9 of application serial number 10/849,610, filed 05/20/2004.

I. Real Party in Interest

The real party in interest in the present application is the Assignee, International Business Machines Corporation of Armonk, New York, as evidenced by the Assignment set forth at Reel 014720/0374.

II. Related Appeals and Interferences

There are no Appeals or Interferences known to Appellant, Appellant's legal representative, or assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. No decisions have been rendered by a court or the Board in any related applications.

III. Status of Claims

1. Status of All Claims in Application

    a. Claims Rejected: 1-9.

    b. Claims Allowed or Confirmed: None.

    c. Claims Withdrawn from Consideration: None.

    d. Claims Objected to: None.

    e. Claims Cancelled: 10-25.

2. Claims on Appeal

    a. The claims being appealed are: 1-9.

    b. The claims being appealed stand finally rejected as noted by the Examiner in the Examiner's Action dated July 10, 2008. These rejected claims, which form the basis of this appeal, are reproduced in the attached Appendix.

IV. Status of Amendments

The Examiner finally rejected claims 1-9 in a final office action dated July 10, 2008. No amendments to claims 1-9, which are on appeal, were made following the final office action dated July 10, 2008.

V. Summary of Claimed Subject Matter

Claim 1 is directed to a computer-implemented method for secure password entry. (Specification, page 2, paragraph 0016, lines 1-7). The method comprises the element of displaying a password prompt comprising a changing stream of random characters, wherein a particular character within the changing stream of random characters is displayed at a visibly detectable higher frequency. (Specification, page 2, paragraph 0017, lines 1-5, page 6, paragraph 0053, lines 1-11). In addition, the method comprises the element of receiving input to increment or decrement the particular character to reach a password character of a password. (Specification, page 2, paragraph 0017, lines 5-10, page 6, paragraph 0054, lines 1-4, paragraph 0057, lines 1-4).

Claim 2 is directed to the method of claim 1 and is further directed to the element of displaying a plurality of character positions, wherein a stream of random characters is displayed in each of the plurality of character positions, wherein a particular position from among the plurality of character positions provides the password prompt. (Specification, page 2, paragraph 0018, lines 1-6, page 2, paragraph 0019, lines 1-5, page 5, paragraph 0053, lines 1-2).

Claim 3 is directed to the method of claim 2, and is further directed to the element of adjusting which character position from among the plurality of character positions provides the password prompt. (Specification, page 2, paragraph 0019).

Claim 4 is directed to the method of claim 2, and is further directed to the element of adjusting a number of the plurality of character positions. (Specification, page 5, paragraph 0051, lines 1-5).

Claim 5 is directed to the method of claim 1, and is further directed to the element of responsive to receiving input of a character selection input for selecting the particular character, selecting the particular character as the password character from among a plurality of separately selectable password characters of the password. (Specification, page 2, paragraph 0017, lines 5-10, page 6, paragraph 0058, lines 1-3). In addition, the method comprises the

element of responsive to receiving input of a password completion character indicating that the password is complete, securely passing each separately selected password character of the password to a requesting software layer. (Specification, page 2, paragraph 0017, lines 10-14, page 6, paragraph 0058, lines 5-6).

Claim 6 is directed to the method of claim 1 and is further directed to the element of responsive to receiving a request for a password from a software layer within a data processing system, invoking a password entry controller from within the data processing system, wherein the password entry controller controls the displaying the password prompt and the receiving input to increment or decrement the particular character. (Specification, page 4, paragraph 0042, lines 5-9, page 4, paragraph 0043, lines 6-9).

Claim 7 is directed to the method of claim 1 and is further directed to the element of responsive to receiving, at a client system, a request for a password entry from a server system from which the client system is attempting to access a resource, invoking a password entry controller from within the data processing system, wherein the password entry controller controls the displaying the password prompt and the receiving input to increment or decrement the particular character. (Specification, page 4, paragraph 0042, lines 1-9).

Claim 8 is directed to the method of claim 1 and is further directed to the element of generating the stream of random characters, wherein the particular character is randomly selected. (Specification, page 5, paragraph 0020, lines 1-2).

Claim 9 is directed to the method of claim 1 and is further directed to the element of adjusting a frequency percentage at which the particular character is displayed in the stream of random characters. (Specification, page 5, paragraph 0020, lines 2-5).

VI. Grounds of Rejection to be Reviewed on Appeal

1. Claims 1-9 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Baker (US Patent 5,428,349) in view of Hoover (6,209,102).

VII. Argument

1.   35 U.S.C. 103(a), Alleged Obviousness under Baker in view of Hoover, Claims 1-9

The Final Office Action rejects 1-9 under 35 U.S.C. §103(a) as being allegedly unpatentable over Baker (US Patent 5,428,349) in view of Hoover (US Patent 6,209,102). [Final Office Action, p. 5]

As noted in the Office Action, under 35 USC §103(a) a patent may not be obtained though the invention is not identically disclosed as described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. In *Graham v. John Deere*, the Supreme Court clarified that "under 103, in considering the obviousness or nonobviousness of the subject matter, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved, in addition to evaluating evidence of secondary considerations." *Graham*, 383 U.S. 1, 148 USPQ 459 (1966).

The Examiner bears the initial burden of supporting any prima facie conclusion of obviousness. See *In re Rinehart*, 531, F.2d 1048, 189, USPQ 143 (CCPA 1976); *KSR International Co. v. Teleflex Inc.,* 82 USPQ2d 1385, 1396 (2007); MPEP 2142. The key to supporting a rejection under 35 USC 103 is the clear articulation of the reasons why the claimed invention would have been obvious; the analysis supporting a rejection under 35 USC 103 should be made explicit. *See KSR International Co.,* 82 USPQ2d at 1396; MPEP 2142 (Rev. 6, Sept. 2007).

Appellants traverse the rejection of claims 1-9. Appellants respectfully assert that the Office Action fails to establish a prima facie case of obviousness because the Office erred in the Graham factual findings and there is no clear articulation of the rationale supporting a conclusion of obviousness. Because the

Office Action fails to establish a prima facie case of obviousness, Appellants

respectfully request withdrawal of the rejection under 35 USC 103(a) and

allowance of the claims. The claims do not stand or fall together.

Claim 1

Claim 1 reads:

1.   A computer-implemented method for secure password entry,
comprising:
        displaying a password prompt comprising a changing stream
of random characters, wherein a particular character within said
changing stream of random characters is displayed at a visibly
detectable higher frequency; and
        receiving input to increment or decrement said particular
character to reach a password character of a password.

Appellants respectfully assert that the Office has erred in finding a prima

facie case of obviousness as to claim 1 because under a proper Graham

analysis, when Baker and Hoover are considered as a whole, the references do

not teach the elements of claim 1 and there is no clear statement as to the

rationale for one of ordinary skill in the art finding claim 1 as a whole obvious in

view of the differences between Baker and Hoover and claim 1.

*displaying a password prompt comprising a changing stream of random
characters, wherein a particular character within said changing stream of random
characters is displayed at a visibly detectable higher frequency;*

First, in the Graham inquiry, as to the scope and contents of Baker, the

Final Office Action cites Figures 2-4 and the abstract of Baker as reading on the

claimed element of <u>a computer-implemented method for secure password entry</u>.

[Final Office Action, p. 5] The abstract of Baker describes:

        a password access method/algorithm is effected by
        generating a pseudorandom array of each letter of the alphabet and
        the numerals 0 and 9 such that the password entry can be
        monitored without disclosing the letters or numerals contained in
        the password. The preferred arrangement is a square matrix of six
        rows and six columns or characters. The user enters the password
        by selecting either the row or column containing each letter of a
        memorized password.

Figures 2 and 3 of Baker describe I/O displays of Figure 1 (Baker, col. 2, lines 24-48) and Figure 4 of Baker describes a flow diagram for the password entry algorithm of Baker (Baker, col. 3, lines 13-15).

In addition, as to the scope and contents of Baker, the Final Office Action cites Baker, element 8 in Figures 2 and 3 as describing "where a stream of random characters is displayed" as reading on displaying a password prompt comprising a changing stream of random characters. [Final Office Action, p. 5]

Appellants note that col. 1, line 63 – col. 2, line 10 of Baker provide a summary of Baker which describes the scope of Baker, and reads as follows:

> According to the present invention, a display of a randomized matrix of alphanumeric characters is created for the user on a display device. The user visually scans the display and then selects the column (or in an equivalent representation, the row) containing the first character of the memorized password. The matrix is rerandomized and the process continued until the entire password has been entered. Since the successive characters of the memorized password appear with equal probability in columns or rows of the matrix, the actual columns or rows selected are most likely different each time the password is entered. Further, due to the plurality of characters in the selected column or row, the recording of both the displayed matrix and the user inputs does not disclose the memorized password making this method and apparatus particularly useful.

In Appellant's response dated 4/17/2008 (page 7), Appellants noted that element 8 in Figs. 2 and 3, refers to the "thirty-six characters" including twenty-six letters of the alphabet plus the integers zero through nine. *Baker*, col. 2, lines 60-63. Appellants noted that Figures 2 and 3 of Baker describe an I/O device that "displays a random array of characters 8 consisting of six columns and six characters each." *Baker*, col. 2, lines 58-61. Appellants also noted that when Baker is viewed as a whole, it is clear that the random array of characters is not a changing stream of random characters, but instead noted that Col. 3, lines 28-44 and col. 4, lines 5-10 of Baker specify that for each letter of a password, the same thirty-six characters, representing each letter of the alphabet and each number, are randomly ordered into an array and concurrently displayed together

in a matrix of nine by four or six by six proportion. Thus, Appellants asserted and continue to assert that Baker, when viewed as a whole, describes concurrently displaying a different, randomly ordered matrix of all 36 characters for each letter of a password. Baker's matrix of 36 concurrently displayed characters does not teach a single password prompt comprising a changing stream of random characters.

In response to Appellants previous assertions as to the scope and contents of Baker and Baker when properly viewed as a whole, the Examiner states "the system of Baker does not display 'same set of 36 different characters' as Appellant argued, but displays random array of characters in a 6*6 matrix [or in 36 prompt positions]." [Final Office Action, p. 2]

Appellants respectfully submit that within the Final Office Action the Examiner states contradictory positions as to the scope and contents of Baker, and therefore the Examiner has further erred in interpreting the scope and contents of Baker. The Examiner's concludes on page 2 of the Final Office Action that "Baker does not display 'same set of 36 different characters' as Appellant argued, but displays random array of characters in a 6*6 matrix [or in 36 prompt positions]." [Final Office Action, p. 2] This position taken by the Examiner that each separate character in a matrix is a prompt position takes the position that Baker's "random array of characters" actually describes 36 different prompt positions, each containing a single character, which directly contradicts the Examiner's position that Baker teaches the claimed element of a display a password prompt comprising a changing stream of random characters. [Final Office Action, p. 5]

In addition, in considering the differences between Baker and Hoover and claim 1, Appellants respectfully submit that the Examiner has erred by failing to consider each element of <u>displaying a password prompt comprising a changing stream of random characters</u>. Appellants note that all claim limitations must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Appellants respectfully submit that the Examiner has failed to address how element 8 of

Figures 2 and 3 of Baker, which illustrates a matrix of a concurrently displayed random array characters, can read on the claimed **password prompt** comprising a changing **stream** of random characters. In addition, in view of the Examiner's position that Baker's random array of characters in a 6*6 matrix (or in 36 prompt positions), Appellants respectfully submit that the Examiner has failed to address how a matrix of 36 prompt positions can read on the claimed **password prompt** with a **changing stream** of random characters.

Returning to the scope and contents of Baker, the Office Action cites Baker steps 22 and 23 in Fig. 4 as describing "where array of alpha-numeric characters are displayed in a visibly detectable frequency" as reading on <u>wherein a particular character within said changing stream of random characters is displayed at a visibly detectable higher frequency</u>. [Final Office Action, p. 5]

In Appellants' response dated 4/17/08 (page 8), Appellants previously noted that Step 22 in Figure 4 of Baker describes "generate random ordered alpha-numeric array of 0...9 and A...Z" and step 23 of Figure 4 of Baker describes "display random alpha-numeric array as NxM matrix of N rows and M columns." Within the specification of Baker, steps 22 and 23 of Figure 4 are described as "a pseudorandom algorithm is used 22 to randomly order the integers zero through nine and letters A through Z. The nature of the particular pseudorandom algorithm is important only to the extent that it has a nearly uniform distribution such that all the possible sequences of the alphanumeric characters occur with nearly equal likelihood" and "the randomly ordered characters are then displayed 23 in an N by M matrix where N times M is thirty-six. A six by six matrix is used in the preferred embodiment although a nine by four and four by nine matrix are other possible arrangements." *Baker*, col. 3, lines 15-32. Appellants submitted that even without considering Baker in its entirety, it is clear from the portions of Baker cited that Baker describes generating an array of the same set of 36 different characters, for each password letter entry, and displaying the array of the same 36 different characters at the same time in a matrix. Baker's description of an algorithm that is "pseudorandom to the extent that it has a nearly uniform distribution such that all possible

sequences of the alphanumeric characters occur with nearly equal likelihood" describes making sure that the same random array of the set of 36 different characters for concurrent display does not continue to be generated. Appellants respectfully submitted and continue to submit that displaying a different random array of the same set of 36 different characters in a matrix for each password letter entry as described in Baker does not describe "where array of alpha-numeric characters are displayed in a visibly detectable frequency" as claimed in the Final Office Action.

In response to Appellants' previous assertions as to the scope and contents of Baker, in the Final Office Action the Examiner states that "Baker discloses [see Fig. 4, for example] a password algorithm of generating and displaying alpha-numeric characters [steps 22 and 23], and then the user selects a column and row; i.e. character position [step 24] by visually following the randomly changing alpha-numeric [or stream] characters." [Final Office Action, p. 3] Appellants respectfully submit that the Examiner has erred in this interpretation of the scope and contents of Baker. Appellants note that that Step 24 of Baker actually reads "user selects column or row of matrix containing password character". Step 24 of Baker, and Baker as a whole, do not teach the randomly changing "stream" of characters as inserted by the Examiner. In addition, even if the user visually looks within the matrix of Baker to identify the row and column of a matrix containing a password character, step 24 of Baker does not teach the user visually looking within a matrix of characters to follow a changing stream of characters and visually identifying a particular character within said changing stream of random characters is displayed at a visibly detectable higher frequency as is claimed.

In considering the differences between Baker and claim 1, a clear difference between the prior art and claim 1 is that the prior art does not teach a *particular character* of the *changing stream of characters* displayed at a *visibly detectable higher frequency*. In Appellant's previous response dated 4/17/08 (page 10), Appellants submitted:

"In particular, the Office Action cites Baker as reading on "where array of alpha-numeric characters are displayed in a visibly detectable frequency", which does not address the claimed element of a particular character of the changing stream of characters displayed at a visibly detectable *higher* frequency. In addition, neither the Office Action nor Baker teaches any particular character that is included in a changing stream of characters or any particular character that is displayed at visibly detectable higher frequency within the changing stream of characters."

Appellants note that the Final Office Action fails to address this difference between Baker and claim 1 of Baker not teaching any particular character displayed at a higher frequency than other characters. Appellants continue to submit that a clear difference between Baker and claim 1 is that Baker does not teach any particular character displayed at a higher frequency than other characters, and claim 1 clearly teaches the element of <u>a particular character of the changing stream of characters displayed at a visibly detectable higher frequency</u>.

In addition, in considering the differences between Baker and claim 1, Appellants previously submitted in the response dated 4/17/08 (pages 10-11) and continue to submit that in considering the scope and contents of Baker, a prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc., v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). Appellants submitted and continue to submit that when Baker is properly considered in its entirety, the portions of Baker which lead away from the claimed invention are clear. In particular, Appellants previously submitted, and continue to submit:

"when Baker is considered as a whole, it is clear Baker teaches away from the claimed element of a particular character in a stream of characters displayed at a visibly detectable higher frequency. As a whole, Baker describes the importance of each possible character of the 36 different characters appearing in the matrix with equal probability. *Baker*, col. 2, lines 1-6. In particular, Baker describes that for each password letter to be selected, the same set of 36 different characters is displayed and the user only selects the row or column that displays the letter of the password,

so that "since the successive characters of the memorized password appear with equal probability in columns or rows of the matrix, the actual columns or rows selected are most likely different each time the password is entered." *Baker*, col. 2, lines 1-6, col. 3, line 63- col. 4, line 19. Thus, Applicants submit that Baker's description of displaying the same set of 36 different characters for each password entry teaches away from any particular character being displayed at a visibly detectable higher frequency because displaying any single character at a visibly detectable higher frequency would allow an unauthorized user to more easily determine which character a user selects within a row or column, if that character also appeared in other rows or columns."

Appellants respectfully note that the Final Office Action fails to address Appellants argument that Baker teaches away from any particular character displayed at a visibly detectable higher frequency. In addition, Appellants respectfully submit that the Examiner has erred in considering the differences between Baker and claim 1 because the Examiner has failed to Baker's lack of teaching a high frequency character and the portions of Baker that clearly teach away from <u>a particular character of the changing stream of characters displayed at a visibly detectable higher frequency</u>.

Therefore, in view of the scope and content of Baker and the differences between Baker and claim 1, it is clear that the differences between Baker and claim 1 are not such that claim 1 as a whole would have been obvious to one with skill in the art at the time of the invention, and therefore the Final Office Action fails to establish a prima facie case of obviousness as to claim 1. In particular, the Examiner only cites Baker as reading on the claimed element of <u>displaying a password prompt comprising a changing stream of random characters, wherein a particular character within said changing stream of random characters is displayed at a visibly detectable higher frequency</u>. Appellants respectfully submit that it is clear that the gap between the prior art and claim 1 is so wide as to render the claims nonobvious to one of ordinary skill in the art. Clearly, Baker does not teach displaying a password prompt comprising a changing stream of random characters and Baker does not teach a particular character within the changing stream of random characters displayed at a visibly

detectable higher frequency. Moreover, Baker clearly teaches again a particular character within the changing stream of random characters displayed at a visibly detectable higher frequency. Further, there is no modification proposed in the Final Office Action for Baker to teach these elements.

Because a proper Graham factual findings indicate differences between Baker and claim 1 and no clear articulation of the reasons why the claimed invention of claim 1 would have been obvious is provided, the Office erred in finding prima facie obviousness as to claim 1. MPEP 2141, IV. Because the Office fails to find prima facie obviousness as to claim 1, Appellants respectfully request withdrawal of the rejection under 35 USC 103(a) and allowance of the claims.

receiving input to increment or decrement said particular character to reach a password character of a password

The Final Office Action states that Baker does not teach receiving input to increment or decrement said particular character to reach a password character of a password. [Final Office Action, p. 5] In addition, the Final Office Action cites Figures 1 and 2, and for example col. 2, lines 36-32 of Hoover as reading on receiving input to increment or decrement said particular character to reach a password character of a password. [Final Office Action, p. 5]

In considering the scope and content of Hoover, Hoover in general describes selecting a password by selecting one of multiple displayed fields containing characters, where if a hacker is tracking a user's keyboard or mouse entries, the hacker cannot determine a password selection from the keyboard or mouse based selections of fields. *Hoover*, abstract, col. 2, lines 6-9. Col. 2, lines 36-63 of Hoover read:

> In yet another embodiment, shown in FIG. 1, a randomly initialized "bingo card" could be displayed, with the user entering the PIN by clicking on the correct character in each column of the bingo card. The current PIN could be displayable adjacent to the bingo card (FIG. 1) or the selected PIN characters could be highlighted on the bingo card. The current PIN could be displayable adjacent to the bingo card (FIG. 1) or the selected PIN

characters could be highlighted on the bingo card, e.g. by changing the color or shading of the selected characters.

In still other embodiments, the user-selectable fields could be simply displayed as a series of character boxes, much like a crossword puzzle or fill-in-the blank game, with each field being initialized to an unpredictable alphanumeric character. For example, for a six-digit PIN, the system starts by displaying six random digits. To select his PIN, the user cursors through the digits. At each digit, he hits the up or down arrow key (to increment the digit by +1 or -1) an appropriate number of times until the desired digit appears.

Alternatively, as shown in FIG. 2, each particular, initially random PIN digit could be adjusted to the correct value by clicking on the corresponding "+" or "-" buttons.

Alternatively, two rows of digits could be used. One row could display an initially random PIN digit sequence. The user would input to an adjacent row an offset digit sequence such that the correct PIN digit sequence was formed when offset digit sequence row was added to the initially random PIN digit sequence row. The resulting correct PIN digit sequence could be displayed adjacent to the other two rows.

In addition, Figure 1 of Hoover describes an example where for each password character, multiple possible fields are displayed and a user clicks on one of the fields as the password character and Figure 2 of Hoover describes a user viewing a selected random number and then selecting an increment or decrement field to reach a password character. Thus, Hoover describes a user selecting a field that displays a character or the user entering input to increment or decrement a digit displayed in a field.

Previously, Appellants submitted that in considering the differences between Baker and Hoover and the claimed element of <u>receiving input to increment or decrement said particular character to reach a password character of a password,</u> Appellants submitted the following:

Applicants respectfully note that in considering claim 1 as a whole, the particular character displayed in the password prompt at a higher frequency is the character within the changing stream that the user enters input to increment or decrement to reach a password character of a password. Thus, a difference between Baker and Hoover and claim 1 is that Baker describes a user selecting a row or column in which a character of a password is displayed and Hoover describes a user using keystrokes or a

mouse selection to select one of multiple displayed fields containing a character or to increment or decrement a digit displayed in a field, therefore, clearly neither Baker nor Hoover separately or in combination describe a user providing inputs that would adjust the particular character displayed at a higher frequency within a random stream of characters. In particular, Baker and Hoover, separately or in combination, are different from claim 1 because Baker and Hoover do not teach that if in a random stream of characters displayed at a password prompt, the character "A" is displayed at a visibly detectable higher frequency than other characters in the stream and if the user enters input to increment, the character displayed at a higher frequency in the stream changes to "B".

In the Final Office Action, the Examiner states that "Examiner could not understand Appellant's argument clearly because Hoover is applied to claim 1 to address the claimed limitation receiving input to increment or decrement said particular character to reach a password character of a password. As best understood from Appellant's argument, Appellant agrees Hoover teaching the limitation, but argues that combination of Baker and Hoover not teaching claim 1 as a whole." [Final Office Action, p. 3] Appellants did not, and do not agree in Appellant's argument that Hoover teaches the limitation. The Examiner states that based on Hoover's teachings, "Hoover discloses incrementing or decrementing a digit [or password character] to reach at the desired password digit [or to reach a password character of a password, as claimed]. One of ordinary skill in the art recognizes that the method of Hoover could be applied to alpha-numeric characters."

Appellants respectfully submit that the Examiner has erred by not considering claim 1 as a whole in a proper Graham inquiry of the differences between Hoover and claim 1. Claim 1, when properly considered as a whole, teaches the particular character displayed in the password prompt at a higher frequency is the character within the changing stream that the user enters input to increment and decrement to reach a password character of a password. Hoover does not teach receiving input to increment or decrement a high frequency character in a changing stream of a password prompt. Therefore, clearly a difference between Hoover and claim 1 as a whole is that Hoover does

not teach incrementing or decrementing the digit displayed at a higher frequency within a changing stream of random characters to reach a desired password digit and therefore Hoover does not teach receiving input to increment or decrement the higher frequency character within the changing stream of random characters to reach a password character of the password.

After considering the differences between Hoover and claim 1 as a whole, in view of the scope and content of Baker and Hoover and the differences between Baker and Hoover and claim 1, it is clear that the differences between Baker and Hoover and claim 1 are not such that claim 1 as a whole would have been obvious to one with skill in the art at the time of the invention. In particular, regardless of the Examiner's stated rationale for obviousness, it is clear that the gap between the prior art and claim 1 is so wide as to render the claims nonobvious to one of ordinary skill in the art. Clearly Baker only describes changing the order of a set of character concurrently displayed within an array of characters; Baker does not teach a changing stream of random characters or a changing stream of random characters with one of the characters displayed at a visibly detectable higher frequency. Hoover does not describe incrementing or decrementing a character displayed within a changing stream of random characters. It would not be obvious to one of ordinary skill in the art at the time of the invention to first modify Baker to teach changing an array of 36 characters concurrently displayed to instead teach a changing stream of characters displayed at a password prompt, to second modify Baker to teach one of the characters to be displayed at a visibly detectable higher frequency in the changing stream of characters, and third to then modify Hoover's description of incrementing or decrementing the value of a digit in a field to instead teach incrementing or decrementing a particular character displayed at a higher frequency within a changing stream of characters.

As to the rationale stated in the Office Action for why claim 1 would have been obvious to one of ordinary skill in the art at the time the invention was made, the Office Action concludes that "it would have been obvious to a person having ordinary skill in the art at the time of Appellant's invention to combine the

teachings of Hoover and Baker because both inventions are directed to a method of password entry system. Incorporating the input increment and decrement feature of Hoover modifies the password entry system of Baker, so that a mechanism to prevent an attacker from downloading keystrokes or character positions when an authorized user enters password to gain an access to a secured system is implemented (see of Background Hoover)." [Final Office Action, p. 5]

Appellants note that rejections on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007); MPEP 2141. In particular, because there are significant differences between Baker and Hoover and claim 1, including a lack of any teaching of a changing stream of random characters or a particular character within the changing stream displayed at a visibly detectable higher frequency, to establish a prima facie case of obviousness, the Office Action should include a clear articulation of a rationale for why, in view of the actual scope and content of Baker and Hoover and the differences between Baker and Hoover and claim 1, claim 1 would have been obvious to one of ordinary skill in the art at the time of the invention. *KSR*, 82 USPQ2d at 1396; MPEP 2141. The conclusory statement as to obviousness stated with regard to claim 1 does not clearly articulate why one of ordinary skill in the art at the time of invention would have found claim 1 obvious despite the fact that Baker and Hoover do not teach at least one of the elements as taught in claim 1. As indicated by Appellants' comparison of the prior art as a whole with claim 1 as a whole, and the number and complexity of modifications required to reach claim 1 as a whole through the combination of the prior art, Appellants respectfully assert that a mere statement of a reason that a person of ordinary skill in the art might combine Baker and Hoover based on preventing an attacker from downloading keystrokes or character positions does not reach the level of articulated reasoning within some rational underpinning required to support the legal conclusion of obviousness required under 35 USC 101 and KSR

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International, and further does not clearly articulate any of the rationales stated in section 2100 of the MPEP as exemplary rationales. Because there is no clear and explicit articulated reasoning with a clear rationale underpinning to support the legal conclusion of obviousness, the Office Action fails to establish a prima facie case of obviousness as to claim 1.

Therefore, because a proper Graham factual findings indicate differences between Baker and Hoover and claim 1 and no clear articulation of the reasons why the claimed invention of claim 1 would have been obvious is provided, the Office erred in finding prima facie obviousness as to claim 1. MPEP 2141, IV. Because the Office fails to find prima facie obviousness as to claim 1, Appellants respectfully request withdrawal of the rejection under 35 USC 103(a) and allowance of the claims.

Claims 2-9

Appellants respectfully assert that because claim 1 is nonobvious under 35 USC 103(a), claims 2-9 which depend on claim 1 are also nonobvious and should be allowed. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claim 2

Claim 2 currently reads:

> 2. The method according to claim 1 for secure password entry, further comprising:
> displaying a plurality of character positions, wherein a stream of random characters is displayed in each of said plurality of character positions, wherein a particular position from among said plurality of character positions provides said password prompt.

Appellants respectfully assert that the Office has erred in finding a prima facie case of obviousness as to claim 2 because under a proper Graham analysis, when Baker and Hoover are considered as a whole, the references, do not teach the elements of claim 2 and there is no clear statement as to the rationale for one of ordinary skill in the art finding claim 2 as a whole obvious in view of the differences between Baker and Hoover and claim 2.

First, in a Graham inquiry, as to the scope and contents of Baker, the Final Office Action cites Figures 2-3 and col. 2, line 57-col. 3, line 12 of Baker as describing "where plurality of character positions of positions are displayed" and as reading on the claimed element of <u>displaying a plurality of character positions, wherein a stream of random characters is displayed in each of said plurality of character positions</u> and step 24 of Fig. 4 and col. 3, lines 12-44 of Baker as describing "where user selects a particular position" and as reading on <u>wherein a particular position from among said plurality of character positions provides said password prompt</u>. [Final Office Action, p. 6] The Final Office Action does not consider Hoover separately as to claim 2.

Second, in a Graham inquiry, as to the differences between Baker and claim 2, Appellants previously asserted in a response dated 04/17/08 (page 15), and continue to assert that as to the differences between Baker and claim 2, a clear difference between Baker and claim 2 is that Figures 2 and 3 of Baker describes a password prompt that includes, for each password character entry, a separate display of a matrix of a set of 36 different characters, where the user selects a row or column that includes the password character. Baker's password prompt of a matrix of 36 characters and options for a user to select a row or column of the matrix does not teach displaying multiple character positions, with a different stream of random characters in each position, with a particular position providing the password prompt. The Final Office Action fails to respond to Appellants previous assertion as to these clear differences between Baker and claim 2.

Appellants respectfully submit that in view of the differences between Baker and claim 2 and the lack of teaching of multiple character positions with a stream of random characters displayed in each of the character positions, Appellants respectfully assert that as to claim 2, establishing a prima facie case of obviousness requires an articulation of why in view of the differences between Baker and Hoover and claim 2, claim 2 as a whole would have been obvious under Baker and Hoover to one skilled in the art at the time of the invention. Appellants respectfully submit that the Examiner has erred in concluding that a

prima facie case of obviousness is established for claim 2 without any rationale basis for why claim 2 as a whole would have been obvious under Baker and Hoover to one skilled in the art at the time of the invention.

Claim 8

Claim 8 reads:

> 8.   The method according to claim 1 for secure password entry, further comprising:
> generating said stream of random characters, wherein said particular character is randomly selected.

Appellants respectfully assert that the Office has erred in finding a prima facie case of obviousness as to claim 8 because under a proper Graham analysis, when Baker and Hoover are considered as a whole, the references, do not teach the elements of claim 8 as a whole and there is no clear statement as to the rationale for one of ordinary skill in the art finding claim 8 as a whole obvious in view of the differences between Baker and Hoover and claim 8.

First, in the Graham inquiry, as to the scope and contents of Baker, the Office Action cites the abstract, Figures 2 and 3, step 23, and col. 1, line 55 to col. 2, line 10 of Baker as describing "where array of random characters are displayed" and as reading on generating said stream of random characters, wherein said particular character is randomly selected. [Final Office Action, p. 7] Appellants note, as previously discussed, that Baker as a whole describes displaying a matrix with a set of 36 different characters, concurrently displayed, for a user to select a column or row that includes a password character. To the extent that Baker describes random characters, as noted in the Final Office Action, Baker describes an array of random characters displayed, with Baker as a whole describing that the same 36 different characters, which are all possible characters of a password, are randomized within each iteration of the array of characters concurrently displayed.

Second, in the Graham inquiry, as to the differences between Baker and Hoover and claim 8, Appellants respectfully assert that in considering claim 8 as

a whole, including the limitations of claim 1 upon which it depends, it is clear that claim 8 teaches said particular character which is randomly selected and which is displayed at a visibly detecting higher frequency. Appellants respectfully assert that a clear difference between Baker and claim 8 is that Baker describes randomizing the order in which the same set of 36 different characters are concurrently displayed in a matrix, which does not teach generating a stream of random characters or selecting a particular character in the stream of random characters to be displayed at a higher frequency. The specification of the present application provides an example of this "modified" stream of random characters, with one random character displayed at a visibly detectable higher frequency throughout, and for example, in paragraph 0018.

In viewing the scope and content of Baker and Hoover and the differences between Baker and Hoover and claim 8, Appellants respectfully assert that the differences are not such that claim 8 as a whole would have been obvious to one skilled in the art at the time of the invention. In particular, Appellants respectfully assert that there is gap between Baker's description of displaying a matrix of a randomly ordered array of a set of 36 different characters and the claimed elements of generating a stream of random characters modified with a particular character displayed at a visibly detectable higher frequency and the particular character randomly selected, that render the claim nonbovious to one with skill in the art.

Claim 9

Claim 9 reads:

> 9. The method according to claim 1 for secure password entry, further comprising:
> adjusting a frequency percentage at which said particular character is displayed in said stream of random characters.

Appellants respectfully assert that the Office has erred in finding a prima facie case of obviousness as to claim 9 because under a proper Graham analysis, when Baker and Hoover are considered as a whole, the references, do not teach the elements of claim 9 as a whole and there is no clear statement as

to the rationale for one of ordinary skill in the art finding claim 9 as a whole obvious in view of the differences between Baker and Hoover and claim 9.

First, in the Graham inquiry, as to the scope and contents of Baker, the Final Office Action states that Baker fails to teach the elements of claim 9 of adjusting a frequency percentage at which said particular character is displayed in said stream of random characters, but the Office Action states that "Baker teaches displaying randomized alpha-numeric matrix array of characters at constant frequency" in Figures 2-3 and step 23. [Final Office Action, p. 7] Appellants note again that Baker as a whole teaches displaying the alpha-numeric array of the set of 36 different characters randomized within a displayed matrix.

Second, in the Graham inquiry, as to the differences between Baker and claim 9, it is clear that Baker describes displaying the same set of 36 different characters for each password character entry and no portion of Baker describes displaying any particular character at a higher or lower frequency than any other character. In addition, as previously noted, Baker teaches away from a modification that would increase or decrease the frequency of a particular character, because then an array may be displayed that does not include the password character or an array may be displayed that includes the password character on more rows or columns than 1, which would significant increase a hacker's success in guessing which rows or columns contained the password character, even without having to track previous keystrokes. In contrast, claim 9 teaches adjusting the frequency percentage that the high frequency character is displayed in a changing stream of random characters at a password prompt, such that a hacker might be able to detect the high frequency character, but would still have to guess at incrementing or decrementing that character to the password character.

In viewing the scope and content of Baker and Hoover and the differences between Baker and Hoover and claim 8, Appellants respectfully assert that the differences are not such that claim 8 as a whole would have been obvious to one skilled in the art at the time of the invention. In particular, Appellants respectfully

assert that there is gap between Baker's description of displaying a randomized alpha-numeric matrix array of a set of 36 different characters "at constant frequency" and the claimed elements of adjusting a frequency percentage at which a particular displayed at a higher frequency is displayed, that requires significant modifications to reach, which renders the claim nonbovious to one with skill in the art.

Appellants note that rejections on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.,* 82 USPQ2d 1385, 1396 (2007); MPEP 2141. In particular, because there are significant differences between Baker and Hoover and claim 9, to establish a prima facie case of obviousness, the Office Action should include a clear articulation of a rationale for why, in view of the actual scope and content of Baker and Hoover and the differences between Baker and Hoover and claim 9, claim 9 would have been obvious to one of ordinary skill in the art at the time of the invention. *KSR*, 82 USPQ2d at 1396; MPEP 2141. The Office Action concludes that "it would have been obvious to a person having ordinary skill in the art at the time of Appellant's invention to modify the system of Baker to display characters in an adjusted frequency percentage in order to enhance the password entry display unit, which would further discourage and confuse an attacker while eavesdropping". [Final Office Action, p. 7] As indicated by Appellants' comparison of the prior art as a whole with claim 9 as a whole, and Baker teaching away from the Examiner's proposed modification, Appellants respectfully assert that a mere statement of a reason that a person of ordinary skill in the art might combine Baker and Hoover based on discouraging and confusing an attacker while eavesdropping is not supported by Baker and does not reach the level of articulated reasoning within some rational underpinning required to support the legal conclusion of obviousness required under 35 USC 101 and KSR International. Because there is no clear and explicit articulated reasoning with a clear rationale underpinning to support

the legal conclusion of obviousness, the Office Action fails to establish a prima facie case of obviousness as to claim 9.

Therefore, because a proper Graham factual findings indicate differences between Baker and Hoover and claim 9 and no clear articulation of the reasons why the claimed invention of claim 9 would have been obvious is provided, the Examiner erred in finding prima facie obviousness as to claim 9. MPEP 2141, IV. Because the Examiner fails to find prima facie obviousness as to claim 9, Appellants respectfully request withdrawal of the rejection under 35 USC 103(a) and allowance of the claims.

CONCLUSION

It is therefore respectfully requested that the Examiner's rejection of claims 1-9 under 35 U.S.C. §103(a) be reversed and the claims allowed.

Please charge the fee of $500.00 for submission of an Appeal Brief under 37 CFR 41.20(b)(2) to IBM Corporation Deposit Account No. 09-0447. No additional filing fee is believed to be necessary; however, in the event that any additional fee is required, please charge it to IBM Corporation Deposit Account No. 09-0447.

Respectfully submitted,

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VIII. Claims Appendix

The Claims involved in the Appeal are as follows:

1.   A computer-implemented method for secure password entry, comprising:

displaying a password prompt comprising a changing stream of random characters, wherein a particular character within said changing stream of random characters is displayed at a visibly detectable higher frequency; and

receiving input to increment or decrement said particular character to reach a password character of a password.

2.   The method according to claim 1 for secure password entry, further comprising:

displaying a plurality of character positions, wherein a stream of random characters is displayed in each of said plurality of character positions, wherein a particular position from among said plurality of character positions provides said password prompt.

3.   The method according to claim 2 for secure password entry, further comprising:

adjusting which character position from among said plurality of character positions provides said password prompt.

4.   The method according to claim 2 for secure password entry, further comprising:

adjusting a number of said plurality of character positions.

5.   The method according to claim 1 for secure password entry, further comprising:

responsive to receiving input of a character selection input for selecting said particular character, selecting said particular character as said password character from among a plurality of separately selectable password characters of said password; and

responsive to receiving input of a password completion character indicating that said password is complete, securely passing each separately selected password character of said password to a requesting software layer.

6.   The method according to claim 1 for secure password entry, further comprising:

responsive to receiving a request for a password from a software layer within a data processing system, invoking a password entry controller from within said data processing system, wherein said password entry controller controls said displaying said password prompt and said receiving input to increment or decrement said particular character.

7.   The method according to claim 1 for secure password entry, further comprising:

responsive to receiving, at a client system, a request for a password entry from a server system from which said client system is attempting to access a resource, invoking a password entry controller from within said data processing system, wherein said password entry controller controls said displaying said password prompt and said receiving input to increment or decrement said particular character.

8.   The method according to claim 1 for secure password entry, further comprising:

generating said stream of random characters, wherein said particular character is randomly selected.

9.   The method according to claim 1 for secure password entry, further comprising:

adjusting a frequency percentage at which said particular character is displayed in said stream of random characters.

IX. Evidence Appendix

There is no evidence submitted pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner that is relied upon by Appellants in the appeal.

X. Related Proceedings Appendix

There are no decisions rendered by a court or the Board in any related appeals.